

## REMARKS

1. Restriction Requirement.

No restriction requirement has been made in the instant case. However the Undersigned would be willing to make a provisional election of the invention of claims 1-19 upon the PTO's request. The Examiner is encouraged to contact the Undersigned by telephone.

2. Rejection of claims 1-17 under 35 U.S.C. §112, 2<sup>nd</sup> paragraph; Rejections A-E.

Claims 1-19 stand rejected as being indefinite for failing to particularly point out and distinctly claim the subject matter that applicants regard as the invention.

A. Claim 1 stands rejected for use of the abbreviation "UV", which the PTO notes should be replaced with "ultraviolet".

Applicants appreciate the PTO's suggestion and note that appropriate amendments have been made pursuant to the PTO's suggestions.

Reconsideration and removal of the rejection is respectfully requested.

B. Claims 14-18 are rejected for use of the abbreviation "NCO".

The amendment to claim 14 above is believed to fully address the PTO's rejection. Reconsideration and removal of the rejection is respectfully requested.

C. Claim 1 is rejected for use of the phrase "bond activatable upon exposure to UV radiation. It is the PTO's position that the kinds of UV activatable groups suitable in the composition must be clearly stated in the claim. The PTO further states the same in regards to functional groups (a21) and (a31).

Applicants must respectfully disagree and submit that this is a rejection more suited to 35 USC 112, 1<sup>st</sup> paragraph, i.e., an overbreadth rejection.

The first sentence of the second paragraph of Section 112 is a requirement for precision and definiteness of claim language. If the scope of subject matter embraced by a claim is clear and if the applicant has not otherwise indicated that he intends the claim to be of a different scope, then the claim particularly points out and distinctly claims the subject matter which the applicant regards as his invention. In re Borkowski et al. 164 USPQ 642, (CCPA 1970)

Definiteness of claim language must be analyzed, not in a vacuum, but in light of (1) the content of the particular application disclosure, (2) the teachings of the prior art, and (3) the claim interpretation that would be given by one possessing the ordinary level of skill in the pertinent art at the time the invention was made. See, e.g., *In re Marosi*, 710 F.2d 799, 218 U.S.P.Q 289 (Fed. Cir. 1983).

In this case, it is respectfully submitted that one of skill in the art reading the specification would understand what is meant by "at least one bond" and the nature of the various functional groups (a11), (a21), and (a31). It is noted that functional groups (a11) are defined independently, while functional groups (a21) and (a31) are defined in terms of their reactivity with each other. The PTO's suggestions with respect to component (a3) have been incorporated and are greatly appreciated.

The nature of functional groups (a11) is set forth on pages 8 & 9 of the Specification, particularly paragraphs [00031] to [00034]. It can be seen that this portion of the Specification sets forth both general and specific functional groups and bonds contained with such functional groups that are suitable for use within and as functional groups (a11). For example, the Specification states:

[00031] Radiation curable component (a1) contains on average at least two functional groups (a11) per molecule, and more preferably at least three functional groups (a11). Each functional group (a11) will preferably have at least one bond which is activatable upon exposure to electromagnetic radiation, and especially UV radiation, so as to crosslink. In a particularly preferred embodiment, each functional group (a11) will have one UV activatable bond.

[00032] In a preferred embodiment, the coating composition of the invention will comprise not more than six functional groups (a11) on average per molecule, and most preferably not more than five functional groups (a11) on average per molecule.

[00033] Examples of suitable bonds that can be activated with electromagnetic radiation, especially UV radiation, are carbon-hydrogen single bonds or carbon-carbon, carbon-oxygen, carbon-nitrogen, carbon-phosphorus or carbon-silicon single or double bonds. Of these, the double bonds are preferred, with the carbon-carbon double bonds being most preferred.

[00034] Highly suitable carbon-carbon double bonds are present, for example, in (meth)acrylate, ethacrylate, crotonate, cinnamate, vinyl ether, vinyl ester, ethenylarylene, dicyclopentadienyl, norbornenyl, isoprenyl, isopropenyl, allyl or butenyl groups; ethenylarylene ether, dicyclopentadienyl ether, norbornenyl ether, isoprenyl ether, isopropenyl ether, allyl ether or

butenyl ether groups; or ethenylarylene ester, dicyclopentadienyl ester, norbornenyl ester, isoprenyl ester, isopropenyl ester, allyl ester or butenyl ester groups. Of these, (meth)acrylate groups are preferred, with acrylate groups being most preferred.

It is therefore respectfully submitted that functional groups (a11) are not indefinite because one of ordinary skill in the art would understand what is meant by the phrase "at least one bond activatable by ultraviolet radiation".

Nor does the definition of functional groups (a21) and (a31) in terms of their respective reactivity render the claims indefinite. Paragraph [00048] of the Specification makes it clear that functional groups (a21) have to be selected so that a thermally initiated reaction with the functional groups of the crosslinking component (a3) will occur. Specific examples of various functional groups can be seen in the paragraphs [00051] – [00051].

Likewise, the nature of functional groups (a31) can be understood from a review of paragraph [00061] which clearly indicates that functional groups (a31) will be those present in polyisocyanates, aminoplast resins, and/or tris(alkyoxycarbonylamino)triazines. In particular, it is respectfully submitted that one of skill in the art will appreciate the selection of the various functional groups reactive with such crosslinking agents and their respective functional groups.

Because one of skill in the art would understand what is meant by functional groups (a21) and (a31), it is not necessary for all specific embodiments to be incorporated into the language of independent claim 1.

As a result, reconsideration and removal of the rejection is respectfully requested.

D. Claim 6 is said to lack antecedent basis in as much as claim 1 is said to lack any support for "isocyanate reactive functional groups (a12).

The foregoing amendments to claims 6, 13, and 14 are believed to fully rectify the basis of rejection. Reconsideration and removal of the rejection is respectfully requested.

E. Claims 2 and 3 are said to be confusing for use of the phrase "nonvolatile weight".

Applicants respectfully submit that one of skill in the art will appreciate that "nonvolatile weight" refers to the weight of that part of a component that is nonvolatile. The Undersigned does not believe that the use of this term is indefinite but encourages the PTO to make any suggestions deemed necessary. Reconsideration and removal of the rejection is respectfully requested.

*Claims 1-19*

4. Rejection of claims 1-5, and 8-21 under 35 U.S.C. §103(a) as obvious over Lahrmann et al., U.S. Patent 5,425,970, (hereafter "Lahrmann" or "970").

Applicants greatly appreciate the detailed basis of rejection but must respectfully disagree.

To establish a prima facie case of obviousness, three basic criteria must be met. First, there must some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. *MPEP 2143*

Lahrmann does not meet this standard.

Lahrmann teaches a process for the production of multi-coat lacquers that requires the use of two separate clearcoats. At least one of the clearcoats must be a heat-curable clearcoat while "...at least one further clear lacquer coat" must be applied that is a radiation-curable coating which is cured by UV radiation or electron beam radiation. See '970, *Abstract and claim 1*.

Thus, it is an operational principle of Lahrmann that two separate clearcoats be used, one that is heat cured and one that is cured with UV radiation or electron beam. In contrast, Applicants' invention requires the recognition that these functions can be combined in a *single* coating composition. In order to get Applicants' invention from Lahrmann, one of skill in the art would first have to recognize the problems solved by Applicants' invention, and second to appreciate that the solution to such problems lay in the use of a single coating having *both* a UV curable binder component (Applicants' component (a1)) and a thermally curable binder component (Applicants' component (a2)).

Lahrman does not recognize the problems addressed by Applicants' invention.

As noted in Applicants' Specification:

Efforts to use coatings curable solely with the use of actinic radiation have encountered other problems. Actinic radiation as used herein refers to electromagnetic radiation such as UV radiation or X-rays, as well as to corpuscular radiation such as electron beams. The unique contours and configurations of many shaped porous articles result in three-dimensional articles having 'shadow' zones or areas that are obscured from direct irradiance from the chosen energy source. Thus, the use of coatings cured via actinic energy sources can result in uncured or partially cured coating films in those shadow areas not visible to one or more of the energy sources. Alternatively, increased expense may be incurred due to the procurement of additional actinic energy sources in an effort to 'reach' all shadow areas. It will be appreciated that in many instances, manufacturing constraints will limit the number and/or location of actinic energy sources. Also, in many cases the overspray does not cure due to oxygen inhibition caused by the large surface area ratio of the particle and any dispersed oxygen within the particle.

*(Applicants' Specification, page 2, paragraph [0007])*

These problems would not be resolved by Lahrman's use of two separate coatings. A reference that performs a step of a claimed process for a different purpose and does not recognize the problem solved in applicants' process does not render the process obvious. *Ex parte Wisdom et al.*, 184 U.S.P.Q. 822 (POBA 1973)

Nor does Lahrman provide any motivation or suggestion to solve these problems in the particular manner developed by Applicants, i.e., with the use of a single coating having *both* a UV curable binder component (Applicants' component (a1)) *and* a thermally curable binder component (Applicants' component (a2)). Without such a motivation, Lahrman cannot provide a *prima facie* case of obviousness. A *prima facie* case of obviousness is established when the teachings from the prior art itself would appear to have suggested the claimed subject matter to a person of ordinary skill in the art. *In re Rinehart*, 189 USPQ 143 (CCPA 1976) There is no suggestion in Lahrman to do what Applicants have done.

Indeed, modification of the process of Lahrman so as to obtain Applicants' claimed process would change the basic nature and principle of operation of the invention set forth in the '970 patent. This fact supports Applicants' position that the '970 patent alone fails to provide a *prima facie* case of obviousness. If the proposed

modification or combination of the prior art would change the principle of operation of the prior art invention being modified, then the teachings of the references are not sufficient to render the claims *prima facie* obvious. *In re Ratti*, 123 USPQ 349 (CCPA 1959); MPEP 2143.01

It is the PTO's position that Example 6 of the '970 patent teaches the use of a composition containing Applicants' components (a1) and (a3).

Applicants' must respectfully disagree with this argument for several reasons.

First, the motivation must come from the reference, not from the PTO with the benefit of hindsight from Applicants' invention. Even if the teachings of a primary reference could be modified to arrive at the claimed subject matter, the modification is not obvious unless the prior art also suggests the *desirability* of such a modification. *In re Laskowski*, 10 U.S.P.Q.2d 1397, 1398 (Fed Cir. 1989).

The polyisocyanate in Example 6 is used to react with the hydroxyl functionality of the radiation curable component. Why would one of skill in the art add in something else for reaction with the polyisocyanate? The resulting crosslinks are taught to be all that is necessary to achieve the stated performance goals. In the absence of any teaching to do so, the addition of another binder crosslinkable with the polyisocyanate is merely an application of the prohibited "obvious to try" standard. "Obvious to try" is not a valid test of patentability. *In re Mercier*, 185 U.S.P.Q. 774 (CCPA 1975) Patentability determinations based on that as a test are contrary to statute. *In re Antonie*, 195 U.S.P.Q. 6 (CCPA 1977)

It appears to be the PTO's position that Applicants' requirement of a thermally curable binder having no more than 5% by weight aromatic moieties is suggested by Lahrmann because the '970 patent teaches that "... the epoxy(meth)acrylate prepolymers having thermally curable functional groups should contain no aromatic moieties; however aromatic containing binders are not suggested or employed in the examples". (*Office Action of 12/05/03, page 3*)

Thus, the PTO suggests that the absence of an express teaching away is itself a motivation to do what an Applicant has done.

However, this is not the standard for a *prima facie* case of obviousness. The MPEP requires that the cited prior art provide the motivation to do what is claimed. This

motivation may not come from the PTO or with the hindsight provided by Applicants' claimed invention.

To establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. *MPEP 2143* The mere fact that references can be combined or modified does not render the resultant combination obvious unless the prior art also suggests the desirability of the combination. *In re Mills*, 16 USPQ2d 1430 (Fed. Cir. 1990)

This standard is not met by Lahrmann with respect to Applicants' claimed invention that requires a coating composition having both a radiation curable binder and a thermally curable binder having no more than 5% by weight aromatic moieties.

The mere allegation that the differences between the claimed subject matter and the prior art are obvious does not create a presumption of unpatentability which forces an applicant to prove conclusively that the Patent Office is wrong. *In re Soli*, 137 USPQ 797 (CCPA 1963)

Moreover, where the prior art gives no indication of which parameters are critical and no direction as to which of many possible choices is likely to be successful, the fact that the claimed combination falls within the scope of possible combinations taught therein does not render it unpatentably obvious. *In re O'Farrell*, 7 U.S.P.Q 1673 (CAFC 1988)

Accordingly, it is respectfully submitted that Lahrmann fails to provide a *prima facie* case of obviousness as to independent claim 1 and likewise to those dependent claims that incorporate the limitations of claim 1. Reconsideration and removal of the rejection is respectfully requested.

##### **5. Double Patenting Rejection.**

Claims 1-19 have been provisionally rejected under the judicially created doctrine of obviousness type double patenting over each of claims 1-32 of copending

Application No. 09/941283, claims 1-32 of copending Application No. 09/940748, and claims 1-30 of copending Application No. 09/941295.

In response, Applicants hereby file terminal disclaimers under 37 CFR 1.321 (c) with respect to each of the above copending Applications. All of the cited copending Applications and the instant Application are commonly owned, i.e., all said applications are assigned to BASF Corporation, as indicated by the attached assignments.

Accordingly, reconsideration and removal of the rejections is respectfully requested with respect to claims 1-19.

Respectfully Submitted,

  
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